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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,531

05/04/2007

Hajime Komura

SKITA-0001-00-US

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EXAMINER

WEST, PAUL M

ART UNIT

PAPER NUMBER

2856

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,531	Applicant(s) KOMURA ET AL.	
	Examiner PAUL M. WEST	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07192006.05042007</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinoshita (JP 2001-13047).

3. Regarding claims 1 and 3, Kinoshita teaches detecting a target gas with a gas detection apparatus, wherein the target gas is detected while supplying oxygen from an oxygen supply means to a sensor element of a metal oxide type gas sensor (Par. 0012), and wherein the target gas is detected while supplying water vapor from a water vapor supply means to the sensor element (Par. 0019).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita.

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6. Regarding claims 4 and 6, Kinoshita teaches the limitations as set forth above and teaches supplying a target gas to be sensed which is saturated (greater than 40% with water vapor (Par. 0019), but does not specifically teach that the water vapor is mixed with the oxygen before it is supplied to the sensor element. However, it would have been obvious to one of ordinary skill in the art to supply the water vapor to the oxygen rather than the target gas, because this allows the test gas to be brought from any number of different sources without having to alter the equipment setup for each source to allow for the addition of water vapor.

7. Regarding claim 7, Kinoshita does not teach a specific range of relative humidity for the gas being tested. However, Kinoshita does teach drying the moisture saturated gas to varying levels of humidity before measuring in order to achieve optimum measuring conditions (Par. 0019; Fig. 2). It would have been obvious to one of ordinary skill in the art to use this technique to adjust the humidity of the oxygen to between 40% and 80% because this range likely encompasses optimum measuring conditions for many different target gases.

8. Regarding claim 8, Kinoshita is silent as to the characteristics of the flow rate of the oxygen supplied to the sensor element. However it would have been obvious to one of ordinary skill in the art to use a constant flow rate because this ensures uniform testing conditions throughout the measuring, which leads to more precision in measurement results.

9. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita in view of Talton (US 7,153,272).

10. Regarding claims 2 and 9, Kinoshita does not teach that the gas detecting apparatus having a separation column for separating a gas sample into gas components. However, Talton teaches a gas detecting apparatus and method, which uses a separation column (Col. 10, lines 54-63) to separate a gas sample into sample components and which uses metal oxide gas sensors (Col. 4, lines 5-15). It would have been obvious to one of ordinary skill in the art to combine the teachings of Talton with the apparatus and method of Kinoshita, because using a separation column allows for separation of a gas sample into different gas components, which allows for more accurate and precise detection of a particular compound or gas species.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita in view of Aoki et al. (JP 10179747).

12. Regarding claim 5, Kinoshita teaches the limitations as set forth above but does not teach humidifying a gas or oxygen by supplying the gas into a water for producing water vapor. However, Aoki et al. teach humidifying oxygen by providing oxygen through a pipe 6 into water 2 of a water vapor supply means, which is then supplied outputted from the water vapor supply means through outlet 5 (See Fig. 1). It would have been obvious to one of ordinary skill in the art to combine the teachings of Aoki et al. with the apparatus of Kinoshita because it would provide way to maintain optimum humidity despite changes of flow rates of oxygen.

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita in view of Talton and further in view of Takahashi et al. (5,602,326).

14. Regarding claim 10, the combination of Kinoshita and Talton teaches the limitations as set forth above but does not specifically teach the gas component and the oxygen being supplied separately to the sensor. Takahashi et al. teach a gas detection sensor and method which separately supplies a sensing element 5 with a gas sample component to be measured and a source of oxygen from oxygen pump 11 in substantially the same direction to the sensing element 5 (Col. 5, lines 6-34). It would have been obvious to one of ordinary skill in the art to combine the teachings of Takahashi et al. with the combination of Kinoshita and Talton, and supply humidified oxygen and the gas sample component separately to the gas sensor element, because the oxygen and the sample gas necessarily must come from separate sources so it is much simpler to supply them separately. This would allow the source of the gas sample to be changed easily without affecting the supplying of the oxygen.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL M. WEST whose telephone number is (571)272-8590. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hezron Williams/

Supervisory Patent Examiner, Art Unit 2856